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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,577	09/18/2001	Henrique S. Malvar	3040	8100

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EXAMINER

DIEP, NHON THANH

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,577

Applicant(s)

MALVAR, HENRIQUE S.

Examiner

Nhon T Diep

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12 and 14-19 is/are rejected.
- 7) ☒ Claim(s) 7, 13 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5; 2/23/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

Claim Objections

1. Claims 8 and 11-19 are objected to because of the following informalities:

Claim 8, which is depends on claim 1, claims elements 210-212 of figure 2, these elements belong to an encoding part of the system; however, the preamble of claim 1 addresses to method of decoding only; it is suggested that a preamble to be changed to read “ a method for **encoding and** decoding video...”;

Claim 11, by dependency claims 12-19, line 16, recites “the block transform **encoder**, including”, again, it is suggested to change the word “**encoder**” to read – **decoder**—to be consistent throughout.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-2, 5-6 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Jing et al (US 6,301,304).

Jing et al disclose an architecture and method for inverse quantization or discrete cosine transform coefficients in MPEG decoders (fig. 4) comprising the same method for decoding video or image pixel data, comprising: receiving a set of quantized coefficients (el. 406); de-quantizing the quantized coefficients into transform coefficients (el. 408); and applying an inverse transform process to the transform coefficients to reconstruct input pixel information therefrom, the inverse transform process applying inverse transformation calculations having values such that each multiplication operation can be performed by a shift operation (col. 12, ln. 4-7) as specified in claim 1; wherein de-quantizing the quantized coefficients includes multiplying each quantized coefficient by a parameter selected from at least one table (col. 3, ln. 21-51) as specified in claim 2; wherein the quantized coefficients and parameter values enable de-quantizing in 16 bit arithmetic (col. 9, ln. 63-67) as specified in claims 5-6; a computer-readable medium having computer-executable instructions for performing the method of claim 1 (col. 9, ln. 59-62) as specified in claim 10.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-4, 8, 11-12, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jing et al.

As applied to claim 2 above, it is noted that Jing et al further disclose that the mechanism that provides the quantized integer coefficients includes an entropy encoder in the block transform encoder, at least one communication medium or device that logically connects the block transform encoder to the block transform decoder, and an entropy encoder in the block transform decoder (inherently included) as specified in claim 16; wherein de-quantizing the quantized coefficients includes multiplying each quantized coefficient by a parameter selected from at least one table (col. 3, ln. 21-51) as specified in claim 17; the transform process corresponds to two-dimension row transformation and column transformation processes (col. 10, ln. 28-31) as specified in claim 19; and at least there are more than one tables of parameters are accessible when decoding (col. 3, ln. 21-51: a set of quantization tables), it does not particularly disclose that the coefficients are logically arranged in a block, and wherein for each quantized coefficient, selection of one of the tables is based on a position of that coefficient in the block or scales the quantized coefficients, by, for each quantized coefficients, selecting a parameter from a selected table of a set of three tables as specified in claims 3-4 and 18. It is the examiner's opinion that any decoding system that uses more than one tables (and that means 2 or 3 or more) needs to have its coefficient arranged in a logically way and that the selection of any coefficient should be in according to position of that coefficient either from a descending or an ascending

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orders and therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Jing et al by arranging coefficients in a logical order so as to easily matching with the multiple quantization tables used for decoding.

With regard to claims 8, 11-12, 14-15 and 18: Even though Jing et al does not particularly disclose the step of applying a transform process to input pixel information to construct transform coefficients therefrom, the transform process applying transformation calculations having values such that each multiplication operation can be performed by a shift operation; and quantizing the transform coefficients into the quantized coefficients and other steps as specified in claim 8, 11-12, 14-15 and 18; however, Jing et al shows at the decoding part of the system the step of de-quantizing the quantized coefficients into transform coefficients (el. 408); and applying an inverse transform process to the transform coefficients to reconstruct input pixel information therefrom, the inverse transform process applying inverse transformation calculations having values such that each multiplication operation can be performed by a shift operation and other steps (col. 12, ln. 4-7) and therefore, it would have been obvious to one of ordinary skilled in the art at the time the system was made, to automatically assume that the encoding part of Jing system would inherently include the step of applying a transform process to input pixel information to construct transform coefficients therefrom, the transform process applying transformation calculations having values such that each multiplication operation can be performed by a shift

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operation; and quantizing the transform coefficients into the quantized coefficients or would have been obvious to do just that.

Allowable Subject Matter

6. Claims 21-22 are allowed.
7. Claims 7, 9, 13 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. Li (US 6,507,614) discloses an efficient de-quantization in a digital video decoding process.
 - b. Schneider (US 6,687,726) discloses an apparatus for multiplication by constant factors for video compression method (MPEG).
 - c. Merhav et al (US 6,473,534) discloses a multiplier-free implementation of DCT used in image and video processing and compression.
 - d. Wu et al (US 6,701,019) discloses a method for determining noticeable differences between two images.
 - e. Miller (US 5,995,539) discloses a method and apparatus for signal transmission and reception.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T Diep whose telephone number is 703-305-4648. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S Kelley can be reached on 703 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ND
22 July 2004



NHON DIEP
PRIMARY EXAMINER